

Introduction to WfM DMI Management Applications

**Intel Architecture Labs
Intel Corporation
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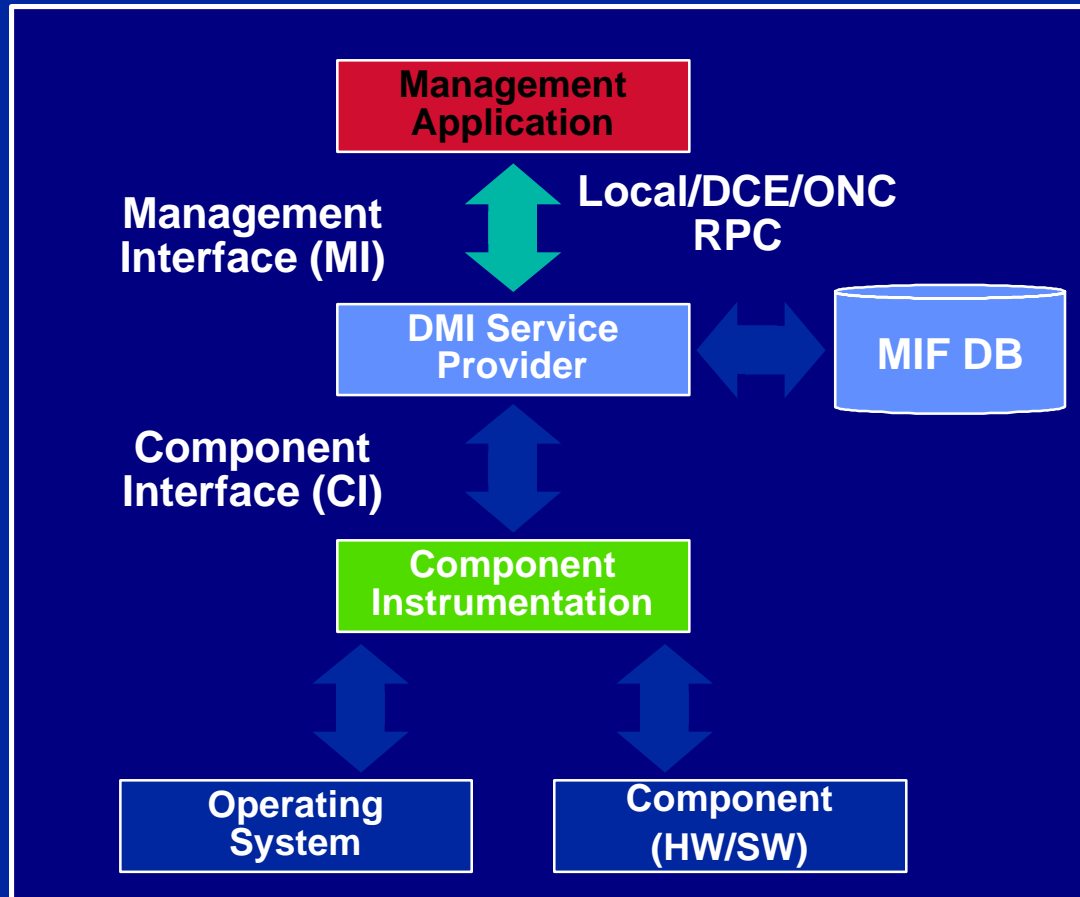
Agenda

- **DMI 2.0**
- **Component Instrumentation**
- **Management Applications**
- **Access via DMI 2.0**
- **Access via SNMP* for Servers**

Acronym Definitions

- **Desktop Management Interface (DMI)**
- **Service Provider (SP)**
- **Management Information Format (MIF)**
- **Management Interface (MI)**
- **Component Interface/Instrumentation (CI)**
- **Management Application (MA)**

DMI 2.0 Architecture



- **Management applications control and manage elements of desktop, mobile or server systems.**
- **Applications communicate with the SP through the MI.**

Component Instrumentation

- A WfM Baseline component technology to help reduce Total Cost of Ownership (TCO).
- Gives access and control to PC systems and components.
- Enables PCs to report unusual conditions autonomously.

**Standards-based instrumentation makes
Baseline-managed PCs remotely
manageable.**

Component Instrumentation

WfM Baseline defines instrumentation for all the major components of a computer system: Desktop, Server or Mobile.

- Processor
- System memory settings
- Motherboard
- Keyboard
- Pointing device
- Parallel ports
- Serial ports
- **Disks**
- Memory array mapped addresses
- Memory device mapped addresses
- Physical memory array
- Operating system
- Physical container global table
- System BIOS
- System cache
- System slots
- Video BIOS
- Video
- Network adapter 802 port
- Network adapter driver
- Memory device:
 - ◆ Portable Battery Mobile
 - ◆ Dynamic States Mobile
 - ◆ Cooling Device Server
 - ◆ Power Supply Server

Component Instrumentation

Disks Example

“Is there a CD in the CD-ROM Drive?”

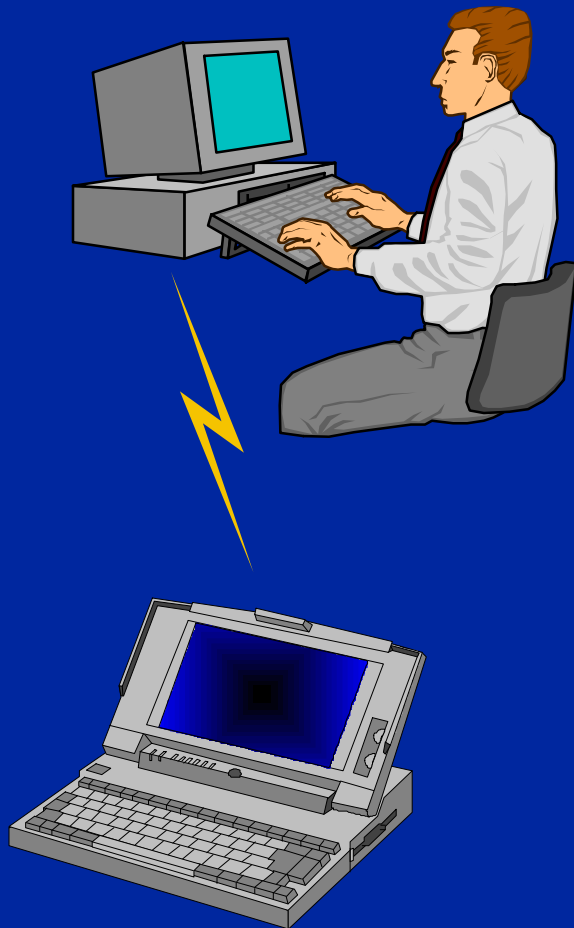
- Storage type
- Disk index
- Storage interface type
- **Media loaded**
- Removable drive
- Removable media
- Device ID
- Logical unit number
- Number of physical cylinders
- Number of physical sectors per track
- Number of physical heads
- Sector Size
- Total physical size
- Number of current bad blocks/sectors
- Partitions
- Physical location
- Security settings

Component Instrumentation

Event Generation Examples

- **Disks:**
 - ◆ Physical device status change
 - ◆ Initialization error
 - ◆ Configuration failure
- **Cooling Devices:**
 - ◆ Status change
 - ◆ Temperature fault
- **System hardware security:**
 - ◆ Security settings change
 - ◆ Container security breach

WfM for Mobile Instrumentation



**Same requirements as other
Baseline-capable PCs, plus:**

- ◆ **Dynamic states and battery power instrumentation.**
- ◆ **Dynamic instrumentation support for hot-pluggable mobile devices, for example:**
 - ◆ **PC cards, hot docking.**

Management Applications

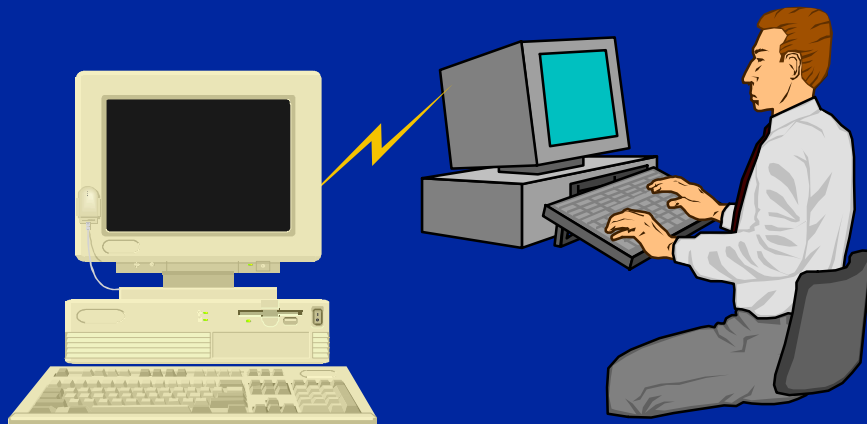
Management Application

Service Provider

Instrumentation

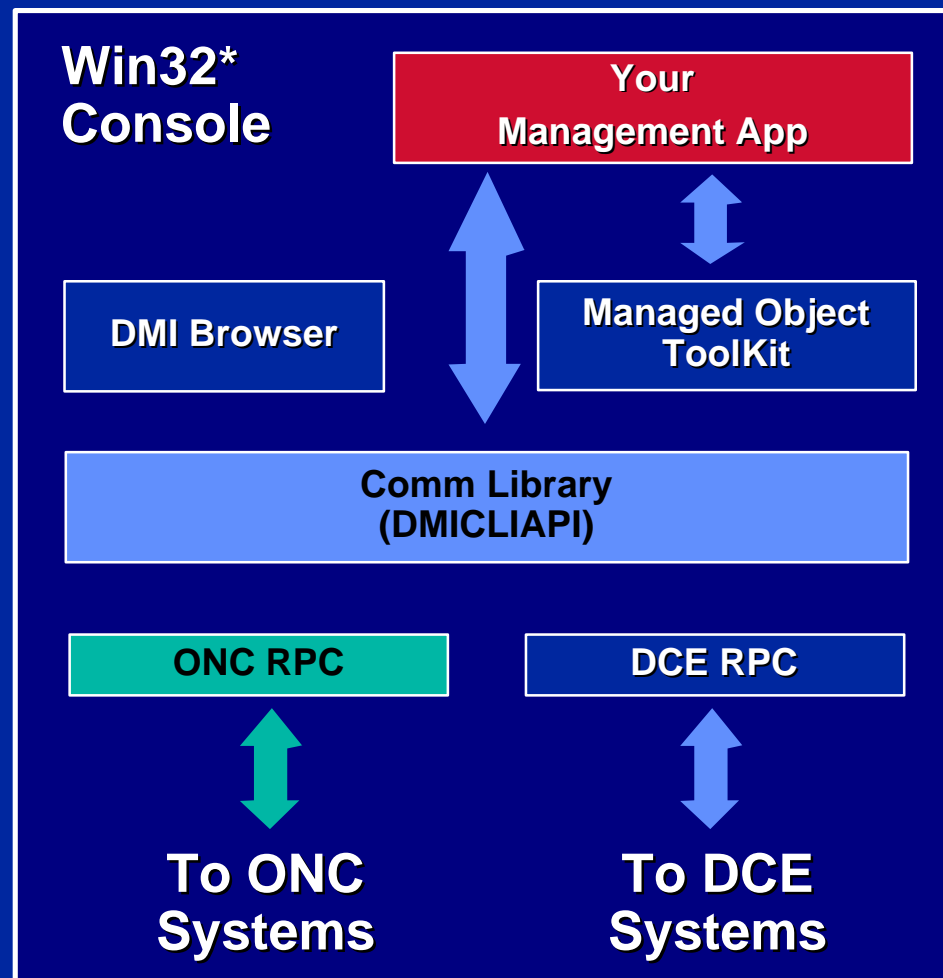
**MAs manage WfM
Baseline-
compliant systems
via:**

- ◆ **DMI 2.0 Service Provider.**
- ◆ **WfM Baseline-compliant instrumentation.**



Remote Access to Service Provider

- Client comm library supports both ONC and DCE RPC:
 - ◆ This is transparent to the caller.
- DCE RPC in Win32* DMI 2.0s SP SDK.
- ONC RPC in Novell NetWare* DMI 2.0 SP SDK: Available now.



Management Applications

MA Development Tools



- Includes DMI SP 2.0 in binary form.
- DMI 2.0 Client Front End Comm library (DMICLIAPI - WCDMI.dll):
 - ◆ Allows easy access to remote systems.
 - ◆ Provides DMI-specific helper functions.
 - ◆ Provides DMI Event Server.

Management Applications

MA Development Tools



- Setup utility for installation.
- Also available:
 - ◆ DMI Explorer -- a general-purpose MA/development tool.
 - ◆ DMI to SNMP* Mapper SDK.
- DMI MA example.
- Free and supported.

Management Applications

Working With DMI 2.0 SP SDKs



- Runs on Windows* 95, Windows NT* and Novell NetWare*.
- Requires familiarity with MIF files.
- Must know DMI Specification 2.00.
- Requires Visual C/C++* experience.

Management Applications

Working With DMI 2.0 SP SDKs



- DCE/RPC Client allows access to remote Windows* 95 and Windows NT* systems: Via TCP/IP and SPX.
- ONC/RPC Client allows access to remote Novell NetWare* systems: Via TCP/IP and SPX.

Management Applications

Working With DMI 2.0 SP SDKs

SDK header files and libraries:

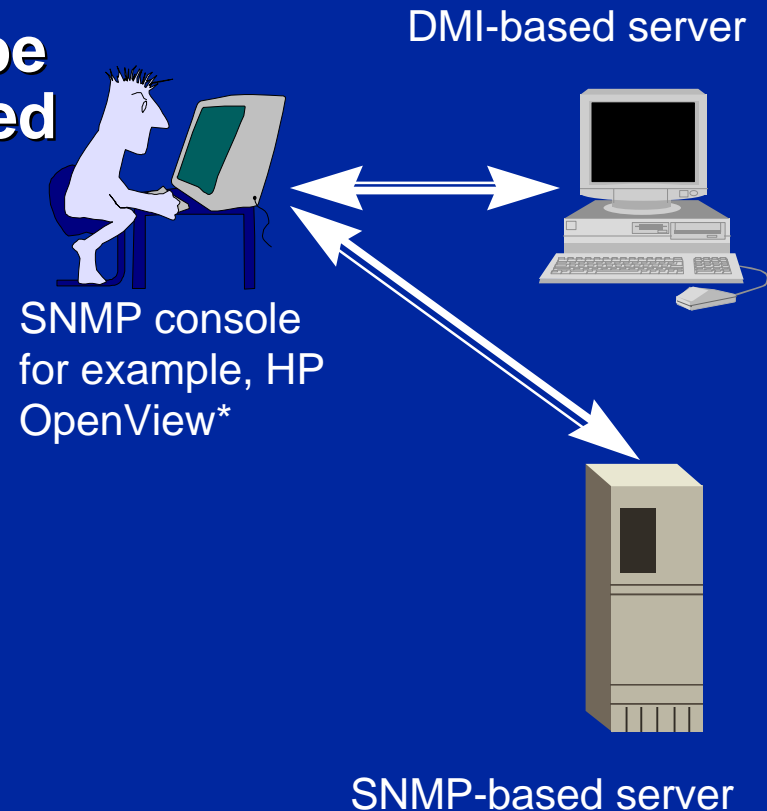


- ◆ Error codes in `\include\dm2err.h`
- ◆ DMI 2.0 API in `\include\dm2com.h`
- ◆ Memory handling API in `\include\dm2mem.h`
- ◆ Indication handling API in `\include\clidmi.h`

**Find API information quickly
using header files.**

DMI to SNMP* Mappers

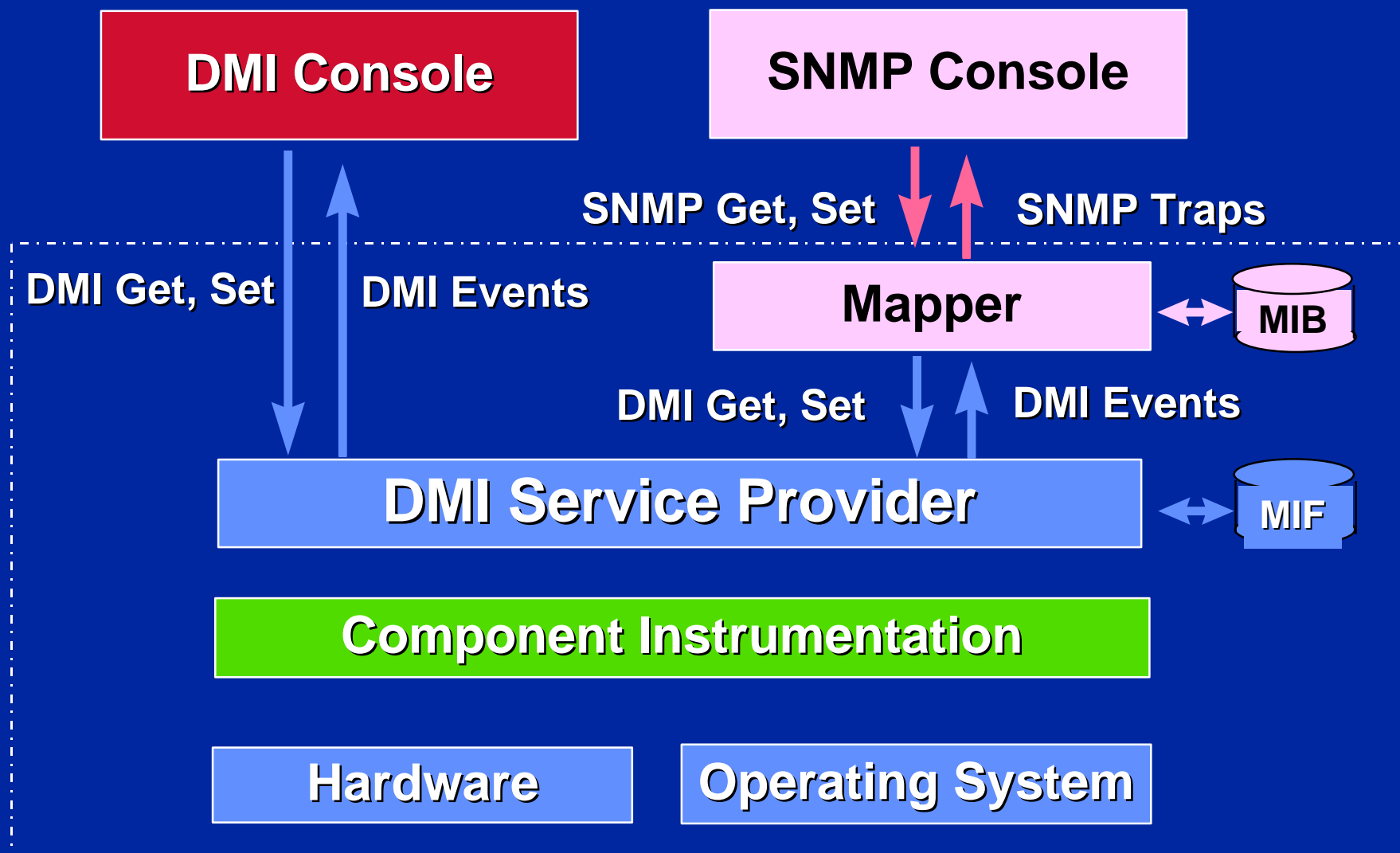
- Enable DMI-based systems to be remotely and uniformly managed using the SNMP* protocol.
- Leverage on the ubiquity of SNMP-based applications and the predominance of DMI-instrumented systems.
- Provide a uniform view of desktop, servers and communication equipment.
- Support DMTF DMI to SNMP Standard Version 1.0.



DMI to SNMP* Mapper

- Supports new DMTF DMI-to-SNMP Mapping specification (<http://www.dmtf.org>):
 - ◆ Microsoft Win32* release
 - ◆ Novell NetWare* release
- Releases will be available on WfM Developer Website (developer.intel.com/ial/wfm/tools/).

DMI to SNMP* Translation



Management Applications

Development Support Tools

Desktop/Mobile/Server
DMI 2.0 MA

SNMP* MA
using Mapper

Management Applications

DMI 2.0s SDK
(Win32*)

DMI 2.0 SDK
(NetWare*)

DMI2SNMP SDK
(Win32, NetWare)

Service Provider

DMI 2.0 SP
(Win32)

DMI 2.0 SP
(NetWare)

Instrumentation

WfM Baseline-Managed Systems
(Desktop, Server, Mobile)



*Brand, name or trademark owned by another company.

Delivering Management Applications



- Win32* DMI 2.0s SP SDK for Win32-based Management Applications.



- Novell NetWare* DMI 2.0 SP SDK for managing NetWare servers from Win32-based MAs.



- DMI to SNMP SDK for SNMP-based Console Applications.



- DMI Explorer provides general DMI browsing capability that's Win32-based.

Summary

- **DMI provides powerful manageability for all systems: Desktop, Mobile and Server.**
- **DMI development tools provide a complete development environment.**

Call to Action



- Take advantage of the large installed base of WfM-enabled systems.
- Develop DMI 2.0 Management Applications.

WfM DMI Information Sources



- Intel DMI 2.0 SP SDKs updates and tools:
 - ◆ <http://developer.intel.com/ial/wfm/tools/>
 - ◆ IDF WfM CD
- Technical support:
 - ◆ Newsgroups and FAQs
<http://support.intel.com/support/desktopmgmt/>
 - ◆ ial_support@intel.com
- DMI 2.0 Specification and other DMTF documents:
 - ◆ <http://www.dmtf.org/>